IN THE CLAIMS:

Please cancel claims 23, 25, 26 and 28-40 and replace with claims 45-71 as follows:

45. A device for analyzing a sample, the device comprising:

a) a body having:

i) a reaction chamber for conducting a reaction;

ii) a separation channel for separating components of the sample;

iii) a transition region connecting the reaction chamber to the separation channel, wherein the portion of the body defining the transition region has sufficiently low thermal conduction so that the transition region substantially thermally isolates the reaction chamber from the separation channel; and

iv) at least one valve in the transition region for controlling fluid flow between the reaction chamber and the separation channel; and

b) at least two electrodes coupled to the body, the electrodes being positioned to induce the sample components to separate into bands in the separation channel when a voltage difference is applied between the electrodes.

46. In combination with the device of claim 45, an instrument into which the device may be inserted, the instrument having electrical connections for applying the voltage difference between the electrodes and having at least one light source and detector for detecting the sample components in the separation channel.

47. The combination of claim 46, wherein the instrument further includes a heater for heating the reaction chamber.

48. The combination of claim 46, wherein the instrument includes additional optics for monitoring the reaction chamber.

49. The device of claim 45, wherein the body further includes:

a) a side channel connected to the transition region for adding or removing fluid from the transition region; and

b) at least a second valve for controlling fluid flow through the side channel.

50. In combination with the device of claim 49, an instrument into which the device may be inserted, wherein the valves comprise membrane valves, the instrument has electrical connections for applying the voltage difference between the electrodes, and the instrument further has means for controlling the membrane valves.

51. The combination of claim 50, wherein the instrument pneumatically controls the membrane valves.

52. The device of claim 45, wherein the valve comprises a mechanical valve having an open position and a closed position.

53. The device of claim 45, wherein the body further includes an inlet port for adding the sample and reagents to the reaction chamber.

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54. The device of claim 45, wherein the body comprises a one-piece polymeric body having the reaction chamber, transition region, and separation channel formed therein.

55. The device of claim 45, wherein the separation channel comprises an electrophoresis or IEF channel containing separation material.

56. The device of claim 45, wherein the body has a first reservoir fluidicly connected to a first end of the separation channel and a second reservoir fluidicly connected to a second end of the separation channel, and wherein the at least two electrodes comprise:

i) a first electrode coupled to the body such that the first electrode is at least partially immersed in the first reservoir; and

ii) a second electrode coupled to the body such that the second electrode is at least partially immersed in the second reservoir.

57. The device of claim 45, wherein each of the electrodes is embedded in the body such that one end of the electrode protrudes through an external surface of the body and such that the other end of the electrode protrudes into an internal region of the body.

58. The device of claim 45, wherein the body comprises a polymeric material, and wherein the electrodes are over-molded in the body.

59. The device of claim 45, wherein the electrodes are screen-printed on the body.

60. A method for analyzing a sample, the method comprising the steps of:

a) introducing the sample into a device having:

i) a reaction chamber;

ii) a separation channel;

iii) a transition region connecting the reaction chamber to the separation channel, wherein the transition region has sufficiently low thermal conduction so that the transition region substantially thermally isolates the reaction chamber from the separation channel; and

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iv) at least one valve in the transition region;

b) subjecting sample components to a reaction in the reaction chamber while the valve is closed, wherein the transition region substantially thermally isolates the reaction chamber from the separation channel during the reaction;

c) opening the valve;

d) injecting into the separation channel a sample plug containing reaction products;

e) separating the reaction products into bands in the separation channel; and

f) detecting the bands.

61. The method of claim 60, further comprising the steps of:

i) optically monitoring the reaction products contained in the reaction chamber; and

ii) determining if sufficient reaction products have been generated within the reaction chamber prior to injecting the sample plug into the separation channel.

62. The method of claim 60, wherein the reaction comprises a nucleic acid amplification reaction, and wherein the reaction products comprise amplified nucleic acid.

63. The method of claim 60, wherein the plug is injected into the separation channel by electrophoretic injection.

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64. The method of claim 60, wherein:

i) the device includes a body defining the reaction chamber, separation channel, and transition region;

ii) the device further includes at least two electrodes coupled to the body, the electrodes being positioned to induce electrophoretic flow, electroosmotic flow, or isoelectric focusing of the reaction products in the separation channel when a voltage difference is applied between the electrodes;

iii) the method further comprises the step of inserting the device into an instrument having electrical connections for applying the voltage difference between the electrodes and having at least one light source and detector for detecting the reaction products in the separation channel; and

iv) the steps of separating the reaction products into bands and detecting the bands comprises applying the voltage difference through the electrical connections in the instrument and detecting the bands using the at least one light source and detector.

65. The method of claim 64, wherein the instrument further includes a heater for heating the reaction chamber, and wherein the step of subjecting the sample components to the reaction comprises heating the reaction chamber with the heater.

66. The method of claim 60, wherein:

i) the device further includes a side channel connected to the transition region; and

ii) the method further comprises the step of adding fluid to or removing fluid from the transition region through the side channel prior to, during, or after the step of injecting the sample plug into the separation channel.

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67. The method of claim 60, wherein:

i) the device further includes a side channel connected to the transition region; and

ii) the method further comprises the steps of adding reagents to the transition region through the side channel and mixing the reaction products with the reagents in the transition region prior to the step of injecting the sample plug into the separation channel.

68. The method of claim 60, wherein:

i) the device further includes a side channel connected to the transition region; and

ii) the method further comprises the steps of adding buffer solution to the transition region through the side channel and injecting the buffer solution into the separation channel prior to the step of injecting the sample plug into the separation channel.

69. The method of claim 66, wherein the device further includes at least a second valve for controlling fluid flow through the side channel, and wherein the method further comprises the step of opening and closing the second valve to control fluid flow through the side channel.

70. The method of claim 60, wherein the reaction products are separated into bands by electrophoresis.

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71. The method of claim 60, wherein the reaction products are separated into bands by IEF.